

WHAT IS CLAIMED IS:

1. A wing structure for use with an airplane comprising:
 - a first spar;
 - a second spar;

a plurality of ribs extending in a cord direction, each rib being coupled between said first spar and said second spar extending in a span direction;

wherein said first spar is of a C-shape and said second spar is of an I-shape in section, each of said first and second spars having a web, a pair of flanges connected to opposite ends of said web and a reinforcing partition wall connected to said web and said flanges; and

wherein said ribs are positioned in the span direction by coupling front portions of said ribs to said reinforcing partition wall of said first spar and coupling rear portions of said ribs to said reinforcing partition wall of said second spar.
2. The wing structure for use with an airplane according to claim 1, wherein said ribs are positioned in the cord direction by bringing one of the front and rear ends of said ribs into abutment against said web of one of said first and second spars.
3. The wing structure for use with an airplane according to claim 2, wherein, in order to bring one of the front and rear ends of said ribs into abutment against said web of one of said first and second spars, a shim is provided in a gap defined between said flange of the other of said first and second spars and each of said ribs.
4. The wing structure for use with an airplane according to claim 3, wherein

said shim is formed by a first positioning plate that includes a projection extending downwardly therefrom.

5. The wing structure for use with an airplane according to claim 2, wherein said ribs include a first flange extending along a length of the ribs in the cord direction of the ribs.

6. The wing structure for use with an airplane according to claim 1, wherein said first spar is a front spar and the second spar is an intermediate spar.

7. The wing structure for use with an airplane according to claim 1, wherein said first spar is an intermediate spar and the second spar is a rear spar.

8. The wing structure for use with an airplane according to claim 5, wherein said ribs include a second flange extending along a length of the ribs and being displaced relative to the first flange in the cord direction of the ribs.

9. A wing structure for use with an airplane comprising:

a first spar;

a second spar;

a plurality of ribs extending in a cord direction, each rib being coupled between said first spar and said second spar extending in a span direction;

wherein said first spar is of an I-shape and said second spar is of a C-shape in section, each of said first and second spars having a web, a pair of flanges connected to opposite ends of said web and a reinforcing partition wall connected to said web and said flanges; and

wherein said ribs are positioned in the span direction by coupling front portions

of said ribs to said reinforcing partition wall of said first spar and coupling rear portions of said ribs to said reinforcing partition wall of said second spar.

10. The wing structure for use with an airplane according to claim 9, wherein said ribs are positioned in the cord direction by bringing one of the front and rear ends of said ribs into abutment against said web of one of said first and second spars.

11. The wing structure for use with an airplane according to claim 10, wherein, in order to bring one of the front and rear ends of said ribs into abutment against said web of one of said first and second spars, a shim is provided in a gap defined between said flange of the other of said first and second spars and each of said ribs.

12. The wing structure for use with an airplane according to claim 11, wherein said shim is formed by a first positioning plate that includes a projection extending downwardly therefrom.

13. The wing structure for use with an airplane according to claim 10, wherein said ribs include a first flange extending along a length of the ribs in the cord direction of the ribs.

14. The wing structure for use with an airplane according to claim 9, wherein said first spar is a front spar and the second spar is an intermediate spar.

15. The wing structure for use with an airplane according to claim 9, wherein said first spar is an intermediate spar and the second spar is a rear spar.

16. The wing structure for use with an airplane according to claim 13, wherein

said ribs include a second flange extending along a length of the ribs and being displaced relative to the first flange in the cord direction of the ribs.

17. A method of forming a wing structure for use with an airplane comprising the following steps:

positioning an upper skin on a surface;

forming a first C-shaped spar with a web, a pair of flanges connected to opposite ends of said web and a reinforcing partition wall connected to said web and said flanges;

forming a second I-shaped spar with a web, a pair of flanges connected to opposite ends of said web and a reinforcing partition wall connected to said web and said flanges;

positioning said first C-shaped spar on the skin;

positioning said second I-shaped spar on said skin at a position displaced a predetermined distance relative to the first C-shaped spar;

positioning a plurality of ribs extending in a cord direction, each rib being coupled between said first C-shaped spar and said second I-shaped spar extending in a span direction; and

coupling front portions of said ribs to said reinforcing partition wall of said first C-shaped spar and coupling rear portions of said ribs to said reinforcing partition wall of said I-shaped second spar.

18. The method of forming a wing structure for use with an airplane according to claim 17, and including the step of bringing one of the front and rear ends of said ribs into abutment against said web of one of said first C-shaped spar and second I-shaped spar for positioning the ribs in the cord direction.

19. The method of forming a wing structure for use with an airplane according to claim 18, and including the step of providing a shim for bringing the one of the front and rear ends of said ribs into abutment against said web of one of said first C-shaped spar and said second I-shaped spar, said shim being positioned in a gap defined between said flange of the other of the first and second spars and each of said ribs.